Ayahuasca: An Amazonian Brew and the Healing of Trauma
A Literature Review

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Brief History of Psychedelic Science in the West

1902: William James, the founder of American psychology, observed the effects of mescaline, ether, and nitrous oxide on individuals. James established the foundations of The Mystical Experience Questionnaire (MEQ) identifying four distinct markers of a mystical experience: ineffability, noetic quality, transiency, and passivity.
1938: Swiss chemist Albert Hoffman synthesized lysergic acid diethylamide (LSD) from ergot mold; five years later, he was inadvertently exposed to the substance, instigating a psychedelic experience. Hoffman then made LSD-25 available to any researcher demonstrating interest in the substance. In the U.S., throughout the late 1940s through the late 1960s, research exploring the effects and therapeutic value of psychedelic substances surged, yielding over 1,000 published research papers and over 40,000 patients treated in psychedelic-assisted psychotherapy (PAP) utilizing the adopted indigenous practice of set and setting.
1970: Outside of a clinical environment, incorrect set and setting began to lead to adverse outcomes triggering an illogical blanket ban on all psychedelics including their research.
2000s: Governmental restrictions on psychedelic research began to loosen, paving the way for a new era of studies incorporating neuroimaging techniques substantiating the psychotherapeutic potential of these substances.
2025 The Psychedelic Renaissance: Thanks to researchers in the field of psychedelic science, cannabis is now legalized for medicinal use in 39 states, psilocybin use is legalized in three states, ketamine can lawfully be prescribed off-label for treatment-resistant depression (TRD), and MDMA-assisted psychotherapy for the treatment of PTSD has moved beyond FDA phase II trials.

History of Ayahuasca

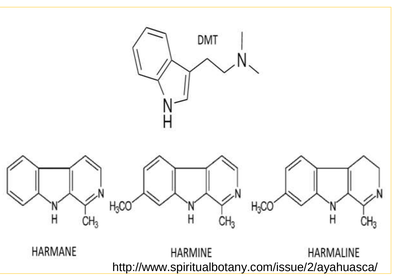
Ayahuasca is a brew believed to have been ingested by Amazonian Indigenous populations for at least 3000 years, administered in ceremonial shamanic practices, tribal healers believe the therapeutic effects of the entheogen contribute to recovery from a variety of psychosomatic ailments. Hamill et al.[1]
The utilization of Ayahuasca by Mestizo populations gained traction in the 1930s as South American churches amalgamated Indigenous and Christian traditions, establishing the syncretic churches of Uniao de Vegetal, Santo Daime, and Barquinha.[1]
The stigma surrounding psychoactive substances has gradually diminished over the past half-century; however, Ayahuasca's psychoactive components remain Schedule 1 substances prohibited in the United States. Numerous individuals who have been unable to find relief from their traumas now embark on journeys to South America, partaking in what is now called Ayahuasca tourism.[1] Through religious exemption, these ayahuasca ceremonies have now made their way to the United States thus American Psychologists should seek to understand the decoction in its totality.

http://samcorporation.com/es/blog/ceremonia-de-ayahuasca-en-peru/

Components & Chemical Mode of Action

Ayahuasca is a blend of two components: bark from the *Banisteriopsis caapi* vine *(B. caapi*) containing monoamine oxidase inhibitors (MAOIs) and leaves from the *Psychotria viridis bush (P. viridis)* containing N, N-dimethyltryptamine (DMT).[1] Following an 8–10-hour soaking period, the tea is ingested in a supervised, safe environment.
The MAOIs in the form of harmala alkaloids, harmane, harmine, and harmaline from the *B. caapi* vine impede the inactivation of DMT in the gut and liver, enabling the DMT to enter the bloodstream and traverse the blood-brain barrier.[1]
Once in the brain, DMT interacts with the Serotonin 2A receptor (5-HT2A)[1], a subtype serotonin receptor implicated in mood, perception, and cognition, initiating the process of profound yet highly specific brain region activity. This MOA provides researchers with the opportunity to integrate imagery data with qualitative data to better understand through the scientific method how Ayahuasca fosters healing from trauma within a holotropic state.
With that context, this review will delve into quantitative and qualitative data, functional magnetic resonance imagery (fMRI), and other imagery data and endeavor to establish a correlation between the two through a transpersonal psychological perspective.

https://terceravia.mx/2018/08/replican-la-experiencia-de-la-muerte-oraculos-a-la-ayahuasca/



http://www.spiritualbotany.com/issue/2/ayahuasca/

Psychology

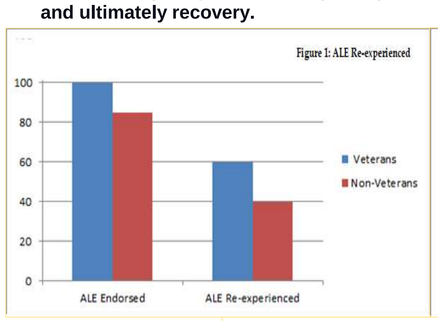
"Prevalence and therapeutic impact of adverse life event reexperiencing under ceremonial ayahuasca."

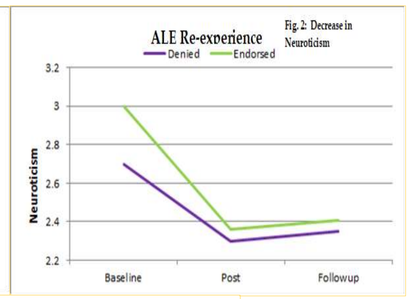
Quantitative data: Measures

In the 2023 study "Prevalence and therapeutic impact of adverse life event reexperiencing under ceremonial ayahuasca" by Weiss *et al.*[2] 336 participants were recruited from three South American Ayahuasca healing centers. All procedures adhered to the relevant guidelines and regulations of the University of Georgia.
Participants: (n = 33 military veterans, 306 non-veterans)
Measures to determine adverse life events experience (ALE):
DSM-5 (LEC-5): The Life Event Checklist is a self-report inventory that measures 17 types of discrete experiences of adversity.
Five-Factor Model Personality Domains (IPIP-NEO-120): Consists of five 24-item FFM domain subscales (Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness). High neuroticism is associated with PTSD.
Lifetime diagnosis of Post-Traumatic Stress Disorder:
During the assessment, participants were asked to disclose any mental health diagnoses they had previously received.

Qualitative S-Data: Reexperiencing (ALEs)

Figure 1: Veteran sample: All 33 participants reported severe ALEs before the Ayahuasca ceremony.
Following the Ayahuasca ceremony, **59% reported re-experiencing an ALE**.
Non-veteran sample: 85% reported previous ALEs
with 53% reporting severe ALEs
Following the Ayahuasca ceremony, **42% reported re-experiencing an ALE.**
Figure 2: Illustrates a substantial decrease in trait neuroticism in participants post-Ayahuasca ceremony and at a 3-month follow-up[2] in both the group who endorsed re-experiencing an ALE and the group who denied re-experiencing an ALE.
Figure 3: The Reappraisal Factor Questionnaire suggests that Ayahuasca-induced re-experiencing may yield therapeutic benefits.
Why is re-experiencing therapeutic? The most effective modalities for treating acute psychological trauma in the West involve re-experiencing ALEs, Prolonged Exposure Therapy, and Eye Movement Desensitization and Reprocessing (EMDR). These therapies seek to expose traumatic events, desensitizing the patient while guiding them toward reframing, reprocessing, and ultimately recovery.





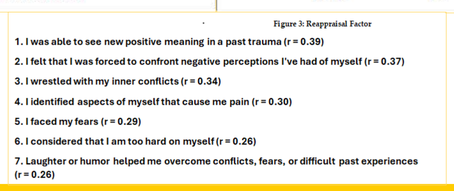
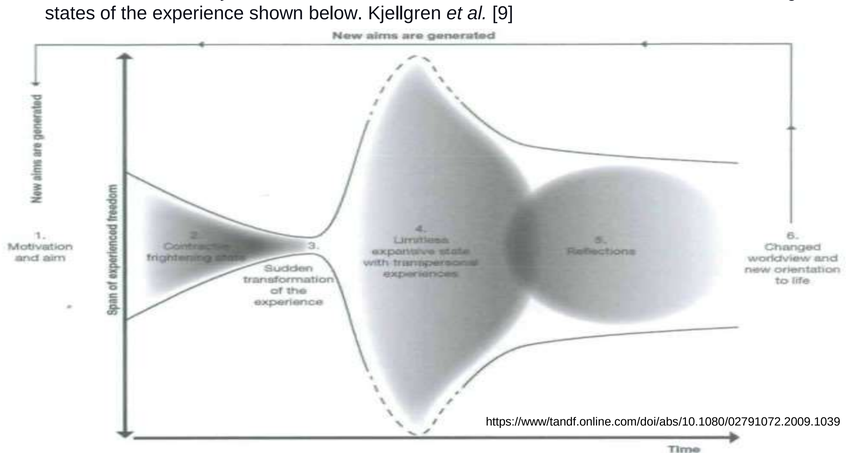


Figure 3: Reappraisal Factor
1. I was able to see new positive meaning in a past trauma (r = 0.39)
2. I felt that I was forced to confront negative perceptions I've had of myself (r = 0.37)
3. I wrestled with my inner conflicts (r = 0.34)
4. I identified aspects of myself that cause me pain (r = 0.30)
5. I faced my fears (r = 0.29)
6. I considered that I am too hard on myself (r = 0.26)
7. Laughter or humor helped me overcome conflicts, fears, or difficult past experiences (r = 0.26)

Transpersonal Psychology

Within Transpersonal Psychology lies the concept of holotropic states (moving towards wholeness). Following the oral activation of ayahuasca and the suppression of the DMN—the network linked to the sense of self or Freudian ego (Carhartt-Harris et al. [8])—the individual's psyche may be compelled to address the origin of the affliction in a state of ego dissolution and heightened consciousness.
Swedish Professor of Psychology Annette Kjellgren created the Transcendental Circle following her observations of ayahuasca ceremonies and her collection of S-Data in 2009 describing five states of the experience shown below. Kjellgren *et al.* [9]


New aims are generated
New aims are generated
Span of experienced freedom
1. Motivation and aim
2. Contractive frightening state
3. Sudden transformation of the experience
4. Limitless expansive state with transpersonal experiences
5. Reflections
6. Changed worldview and new orientation to life
Time
https://www/tandf.online.com/doi/abs/10.1080/02791072.2009.1039

Neuroscience

Functional magnetic resonance imaging (fMRI):
Under fMRI, 30-40 minutes after consuming ayahuasca, significant changes are observed in three primary brain functions, peaking between 60-120 minutes and fading by approximately 4 hours.[1]
Figure 1: Reduced activity in the Default Mode Network (DMN)
The DMN components include the medial prefrontal cortex (mPFC), posterior cingulate cortex (PCC), angular gyrus, precuneus, and hippocampus. Palhano-Fontes *et al.*[3] The DMN, together with autobiographical memory, generates the "sense of self."
Figure 2: Bilateral activation of the occipital cortex
The primary visual area displays activation levels comparable to perceiving a natural image with eyes closed. Araujo *et al.*[4]
Figure 3: As the main emphasis of this project. Regions associated with episodic memory are activated
Areas associated with episodic/autobiographical memory show heightened activity in the parahippocampal gyrus, middle temporal, and frontal cortex.[4]
Single Photon Emission Computed Tomography (SPECT):
SPECT imaging reveals heightened oxygenated blood flow to the insula, potentially indicating elevated consciousness and improved self-understanding through introspection Riba *et al.*[5]
Electroencephalogram (EEG): EEG data reveals *theta* oscillations as the prominent brain wave replacing alpha as the peak frequency under DMT Timmermann *et al.*[6] which may denote the reported "dreamlike" experience. *Gamma* waves are also increased indicating heightened consciousness Schenberg *et al.*[7]

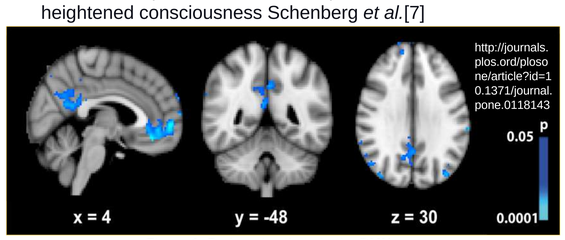


Figure 1: Reduced activity in the DMN

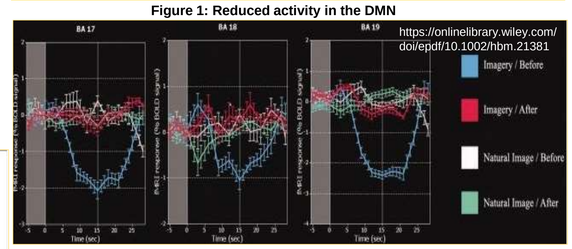


Figure 2: Bilateral activation of the occipital cortex

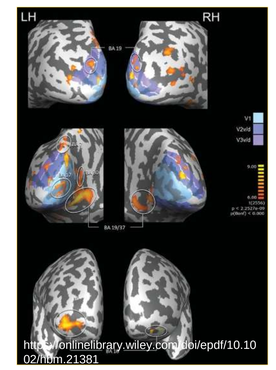


Figure 3: Activation of regions associated with episodic memory

Conclusion

Researchers from all continents have accumulated peer-reviewed, credible data on Ayahuasca and its therapeutic potential for over a decade. It is neither chemically addictive nor habit-forming and has demonstrated efficacy in treating PTSD and substance abuse disorders. However, due to U.S. legislation, researchers face challenges in obtaining the components of Ayahuasca for further study. This project's objective is to raise awareness of this potentially life-saving substance and to propose that information about ayahuasca ceremonies should be provided to patients deemed at risk for relapse when exiting substance rehabilitation centers, and information on Ayahuasca's utility should be presented to individuals who have not found relief from post-traumatic conditions through traditional modalities.
Finally, Indigenous peoples who have amassed ancestral knowledge on Ayahuasca's application for millennia should be consulted as we endeavor to incorporate its use into regulated clinical settings.

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